General Information

Unit convenor and teaching staff
Unit Convenor / Lecturer
Maxwell Morley
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Credit points
2

Prerequisites
(Admission to MAppFin or PGCertAppFin or GradDipAppFin) and ECFS868

Corequisites

Co-badged status

Unit description
The purpose of this Unit is for students to gain a working knowledge of credit risk management and credit models, with associated applications. The unit follows on from the credit topics in ECFS868 and aims to provide a more in depth understanding of both credit fundamentals and the new tools of credit risk management that have emerged over the past decade. The unit covers: techniques of default prediction; an understanding of credit portfolio characteristics such as correlation; active credit portfolio management in banks; the regulatory environment; credit derivatives and structured credit; and counterparty credit risk.

Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes
On successful completion of this unit, you will be able to:

Understand the development of credit risk management in relation to products and markets from the point of view of participants and regulators.

Understand the main tools of single name credit risk, with a view to comparing the key estimation methods, and with particular reference to PD, LGD, EAD and the Merton model.
Analyse the application of correlation and investment theory concepts to building credit portfolio models.

Describe the development of the credit derivatives market and demonstrate an understanding of the main products in that market and the origins of the sub-prime crisis, with particular reference to CDOs.

Apply the main tools of credit portfolio modelling to active credit portfolio management in banks and funds, from both an institutional and a regulatory perspective.

Understand the evolution of capital adequacy standards for banks, from Basel I to Basel III.

Understand the developing area of Counterparty credit risk and its integration into the overall view of credit portfolio risks.

**General Assessment Information**

**Grading Summary**

To pass this unit (requires a Standardised Numerical Grade of 50 or better) the student must pass the final examination.

**Assessment Tasks**

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>20%</td>
<td>Refer to iLearn</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>20%</td>
<td>Refer to iLearn</td>
</tr>
<tr>
<td>Final Exam</td>
<td>60%</td>
<td>Refer to Timetable</td>
</tr>
</tbody>
</table>

**Assignment 1**

Due: Refer to iLearn
Weighting: 20%

**Summary of Assessment Task**

Individual / Group: Individual
Due Date: Refer to the Unit’s iLearn site
Grading Method: Refer to ‘Standards Required to Complete the Unit Satisfactorily’ section
Submission Method: Online via the Unit’s iLearn site
Duration: Refer to Assignment Coversheet
Extension Requests:
If you have extenuating circumstances that prevent you from submitting your assignment by the due date, please make arrangements with your Lecturer prior to the due date.

Unless prior arrangements have been made, any late submission of assignments will automatically be penalised. In the absence of special circumstances, the penalty will be 10% of the available marks for the assessment for each business day (or part thereof) they are late.

On successful completion you will be able to:

- Understand the development of credit risk management in relation to products and markets from the point of view of participants and regulators.
- Describe the development of the credit derivatives market and demonstrate an understanding of the main products in that market and the origins of the sub-prime crisis, with particular reference to CDOs.
- Understand the evolution of capital adequacy standards for banks, from Basel I to Basel III.
- Understand the developing area of Counterparty credit risk and its integration into the overall view of credit portfolio risks.

Assignment 2

Due: Refer to iLearn
Weighting: 20%

Summary of Assessment Task

Individual / Group: Individual

Due Date: Refer to the Unit’s iLearn site

Grading Method: Refer to ‘Standards Required to Complete the Unit Satisfactorily’ section

Submission Method: Online via the Unit’s iLearn site

Duration: Refer to Assignment Coversheet

Extension Requests:

- If you have extenuating circumstances that prevent you from submitting your assignment by the due date, please make arrangements with your Lecturer prior to the due date.
- Unless prior arrangements have been made, any late submission of assignments will automatically be penalised. In the absence of special circumstances, the penalty will be 10% of the available marks for the assessment for each business day (or part thereof) they are late.
On successful completion you will be able to:

- Understand the main tools of single name credit risk, with a view to comparing the key estimation methods, and with particular reference to PD, LGD, EAD and the Merton model.
- Analyse the application of correlation and investment theory concepts to building credit portfolio models.
- Apply the main tools of credit portfolio modelling to active credit portfolio management in banks and funds, from both an institutional and a regulatory perspective.
- Understand the evolution of capital adequacy standards for banks, from Basel I to Basel III.

Final Exam

Due: Refer to Timetable
Weighting: 60%

Summary of Assessment Task

Individual / Group: Individual

Due Date: Refer to Timetable. Assessments: Different Class Groups have different deadlines. Students should find the timetable and dates relevant to their group at www.mafc.mq.edu.au

Grading Method: Refer to 'Standards Required to Complete the Unit Satisfactorily' section

Submission Method: As per MAFC Program Rules & Procedures at www.mafc.mq.edu.au

Duration: 2 hours plus 10 minutes reading time

Examination Conditions:

- All examinations are open book. Any material and aid is permitted, including lecture notes.
- The exam will consist of 50% multiple choice questions and 50% long answer questions.
- Exam times and locations are noted in the unit timetable at www.mafc.mq.edu.au.
- Refer to MAFC Program Rules & Procedures at www.mafc.mq.edu.au.

Extension Requests:

- You are expected to present yourself for examination at the time and place designated in the relevant MAFC Timetable at www.mafc.mq.edu.au.
- Deferral of an examination is not permitted, unless special consideration has been approved by the Director of Studies under the University’s Disruption to Studies Policy.
- Refer to MAFC Program Rules & Procedures at www.mafc.mq.edu.au for information on the University’s Disruption to Studies Policy or non-attendance at an examination.
On successful completion you will be able to:

• Understand the development of credit risk management in relation to products and markets from the point of view of participants and regulators.

• Understand the main tools of single name credit risk, with a view to comparing the key estimation methods, and with particular reference to PD, LGD, EAD and the Merton model.

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• Understand the developing area of Counterparty credit risk and its integration into the overall view of credit portfolio risks.

**Delivery and Resources**

**CLASSES**

**Face-to-Face Teaching:** Generally 20 hours

**Timetable:** Detailed timetable for classes are on the Centre’s web site [www.mafc.mq.edu.au](http://www.mafc.mq.edu.au)

**Consultation Times:**

Students who wish to contact any of the teaching staff may do so through:

• The Unit’s iLearn site, in relation to general queries (so that all students may benefit); or

• Individual consultation with the lecturer by email in the first instance, if necessary.

**REQUIRED AND RECOMMENDED TEXTS AND/OR MATERIALS**

**Text:** Nil

**Additional Readings:**

• Additional readings and spreadsheets critical to the unit are available on iLearn.

• Students should assume these readings and spreadsheets are examinable unless otherwise advised.
Lecture Notes: Available in printed form and electronically via iLearn.

Study Problems:

- Students are required to work systematically through suggested problem sets. These problems will not be collected but they will help you prepare for the exams.
- Answers to the numerical practice problems are included in the unit notes and on iLearn.

Pre-Unit Materials: Information papers on statistics, regression, accounting and other material may be found at [http://www.mafc.mq.edu.au/applications/minimum-knowledge-requirement/pre-course-materials1/](http://www.mafc.mq.edu.au/applications/minimum-knowledge-requirement/pre-course-materials1/). Students should work through this material prior to commencing the degree. The material will remain a useful reference as students progress through the program.

Extension References:

- Bohn, Jeffrey R. and Stein, Roger M. *Active Credit Portfolio Management in Practice*, Wiley Finance (2009).

Calculators:

- A financial calculator that can handle time value of money calculations, logs and power
functions is required.
• The Hewlett Packard calculator hp17bII+ is recommended.
• In examinations, hand held calculators are permitted. Mobile phones and computers are not permitted.

Assumed Knowledge:

• Mathematical content
  ◦ Finance has a high level of numerate content. Consequently this unit is, in parts, mathematical and arithmetical. As an indication of the level of algebra required, Students should find the following problem easy to solve: Solve for $Z_5$: $1,000 = \$681.20(1+Z_5/2)^{10}$
  ◦ Occasionally the unit dips into the differential calculus. As an indication of the level of calculus required, students should be able to interpret the following equation: $D = - \frac{(1+y)}{P} \frac{\Delta P}{\Delta y}$
  ◦ Students should look at the Web link below to obtain notes on the minimum mathematical and statistical knowledge required to undertake the Master of Applied Finance degree: [http://www.mafc.mq.edu.au/applications/minimum-knowledge-requirement/](http://www.mafc.mq.edu.au/applications/minimum-knowledge-requirement/).

• Students should look at the Web link below to obtain notes on the minimum mathematical and statistical knowledge required to undertake the Master of Applied Finance degree: [http://www.mafc.mq.edu.au/applications/minimum-knowledge-requirement/](http://www.mafc.mq.edu.au/applications/minimum-knowledge-requirement/).

• Students are advised to review the Financial Risk Management notes before beginning this Unit, as knowledge of the credit material from that unit will be assumed, with limited revision.
• Familiarity with the concepts of modern portfolio theory and derivatives pricing, particularly the Black and Scholes option pricing model.

Assumed Access:

• Access to a computer with word processing and spreadsheet capability and internet access are assumed, as is general Student computer literacy.
• There is some EXCEL modelling work in the unit and students are advised to bring a laptop loaded with EXCEL to lectures.

TECHNOLOGY USED AND REQUIRED

Unit iLearn Site:
• Found by logging on to iLearn ilearn.mq.edu.au, then clicking on Credit Portfolio Management.
• This is where you will find forums, downloadable resources and links to important pages.
• The forum allows you to communicate with other students and lecturer(s) and may provide supplementary material.
• You are requested to post your questions on the forums at least 24 hours prior to the assignment submission date or the examination date. Questions posted after that time may not be answered. Please try to not leave your questions to the last few days.

Important Notice:

• It is important that you familiarize yourself with the Unit’s iLearn site.
• Students should check the Unit’s iLearn site regularly (minimum twice a week and prior to all lectures) and look for updates and distribution of materials (including case studies) related to the unit or assessments and, if relevant, participate in forum discussions.

Unit Schedule
1. THE EVOLUTION OF CREDIT RISK MANAGEMENT (½ session)
Topics:

• Review of concepts from core Units
• Types of credit exposure
• Credit derivatives
• Fundamental analysis of credit risk
• Ratings agencies
• The role of credit risk models
• Single name
• Portfolio
• Active credit portfolio management
• Regulatory directions
• The GFC
• A timeline of developments in credit risk

2. CREDIT MODELS – PORTFOLIO (1 ½ sessions)
Topics:

• Single name risk – PD, LGD, EAD
• Fundamental v Financial Ratio analysis
• Basics of credit portfolios
• Modelling correlation
• The one factor model
• Multi factor models
• Commercial credit portfolio models
• Mark-to-market
• Debt pricing

3. CREDIT DERIVATIVES (1 ½ sessions)

Topics:
• Credit default swaps
• Credit indices
• Portfolio products
• Securitisation
• CDOs
• Market participants
• Main uses of credit derivatives
• Credit derivatives and the GFC
• UBS Shareholder Report
• Turner Review

4. ACTIVE CREDIT PORTFOLIO MANAGEMENT (1 ½ sessions)

Topics:
• The credit process in a bank
• The credit process in a fund
• Economic capital
• Allocating capital
• Active credit portfolio management
• Regulatory capital
• Basel II
• Basel III
• Provisioning

5. COUNTERPARTY CREDIT RISK (1 session)

Topics:
Learning and Teaching Activities

Strategy
The Master of Applied Finance degree adopts a deep teaching and learning strategy, in which Students acquire and retain knowledge and also are able to make sense of the issues and concepts and apply them in the “real world”. The degree relies heavily on student engagement and participation by: (a) Continuous learning throughout the semester. This is encouraged through a combination of students undertaking prescribed reading throughout the units and / or completion of practice problems, case studies, assignments, class presentations etc and interaction via forums in the unit’s iLearn site; and (b) Assessments, which enable the student to demonstrate his / her understanding of the learning objectives achieved through the continuous learning.

Student Participation
Students participate in this unit by: (a) Attending lectures and participating in class discussion; (b) Before each class, completing the recommended readings of notes and text, and working systematically through suggested problem sets; (c) Interacting on the unit’s iLearn site; and (d) Completing all assessment tasks and exams. On average the unit will require students to complete, for every hour of class time, approximately 3 hours private study.

Policies and Procedures
Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html


Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

**Student Code of Conduct**

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: [https://students.mq.edu.au/support/student_conduct/](https://students.mq.edu.au/support/student_conduct/)

**Results**

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit [ask.mq.edu.au](http://ask.mq.edu.au).

Students should also consult the MAFC Program Rules & Procedures found at [http://www.mafc.mq.edu.au](http://www.mafc.mq.edu.au)

**Student Support**

Macquarie University provides a range of support services for students. For details, visit [http://students.mq.edu.au/support/](http://students.mq.edu.au/support/)

**Learning Skills**

Learning Skills ([mq.edu.au/learningskills](http://www.students.mq.edu.au/support/learning_skills/)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

**Student enquiry service (MAFC-specific)**

For all student enquiries, please contact studentsupport@mafc.mq.edu.au

**Student Services and Support**

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

**Learning Skills**

Learning Skills ([http://www.students.mq.edu.au/support/learning_skills/](http://www.students.mq.edu.au/support/learning_skills/)) provides academic
writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Enquiries
For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help
For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities
PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Understand the development of credit risk management in relation to products and markets from the point of view of participants and regulators.
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- Understand the evolution of capital adequacy standards for banks, from Basel I to Basel
III.
• Understand the developing area of Counterparty credit risk and its integration into the overall view of credit portfolio risks.

Assessment tasks
• Assignment 1
• Assignment 2
• Final Exam

PG - Critical, Analytical and Integrative Thinking
Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes
• Understand the development of credit risk management in relation to products and markets from the point of view of participants and regulators.
• Understand the main tools of single name credit risk, with a view to comparing the key estimation methods, and with particular reference to PD, LGD, EAD and the Merton model.
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• Understand the evolution of capital adequacy standards for banks, from Basel I to Basel III.
• Understand the developing area of Counterparty credit risk and its integration into the overall view of credit portfolio risks.

Assessment tasks
• Assignment 1
• Assignment 2
PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

**Learning outcomes**

- Understand the development of credit risk management in relation to products and markets from the point of view of participants and regulators.
- Understand the main tools of single name credit risk, with a view to comparing the key estimation methods, and with particular reference to PD, LGD, EAD and the Merton model.
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**Assessment tasks**

- Assignment 1
- Assignment 2
- Final Exam

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues.
This graduate capability is supported by:

**Learning outcomes**

- Understand the development of credit risk management in relation to products and markets from the point of view of participants and regulators.
- Understand the main tools of single name credit risk, with a view to comparing the key estimation methods, and with particular reference to PD, LGD, EAD and the Merton model.
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**Assessment tasks**

- Assignment 1
- Assignment 2
- Final Exam

**Changes from Previous Offering**

**Important Notice**

This Unit Guide may be subject to change. The latest version is on the Centre’s web site [www.mafc.mq.edu.au](http://www.mafc.mq.edu.au).

Students should read the Unit Guide carefully at the start of semester. It contains important information about the Unit. If anything is unclear, please consult one of the unit lecturers.

**Standards Required to Complete the Unit Satisfactorily**

**University Policy on Grading:**

- Macquarie University’s Academic Senate has established a Grading Policy available at [http://www.mq.edu.au/policy/docs/grading/policy.html](http://www.mq.edu.au/policy/docs/grading/policy.html). Your final result will include:
A grade ranging from Fail to High Distinction; and
A Standardised Numerical Grade (SNG). A SNG is not a summation of the individual assessment components, but is allocated on the basis of the performance in all assessment items, providing the examination component is passed.

- It is important to note:
  - The Policy does not require that a minimum or maximum number of students are to be failed in any unit;
  - Grades will not be allocated to fit a predetermined distribution; and
  - The process of allocating SNGs does not change the rank order of marks among students who pass the unit.

**Specific Unit Grading:**

- To pass this unit (ie requires a Standardised Numerical Grade of 50 or better), the student must pass the combined examinations component of the assessment.
- All final grades in the Applied Finance Centre are determined by a grading committee and are not the sole responsibility of the unit convenor.
- The core criteria used to assess student work in this unit are:
  - Knowledge and understanding: Understanding key ideas, knowledge and use of concepts.
  - Application: Ability to apply theoretical ideas and frameworks in practice and in a critically reflective way.
  - Reasoning and analysis: Ability to analyse, use critical reasoning and principles to formulate a position, balancing theory and personal reflection.
  - Professional literacy and research: Understanding of professional factors (language and landscape) and ability to undertake appropriate research.
  - Communication and presentation: Ability to communicate and present effectively (written and oral, as relevant).
  - Use of mathematical and statistical ideas: Ability to use mathematical and statistical ideas, methods and formulae appropriately.
- Performance in relation to each of these criteria are assessed against the University’s grading descriptors:
### Grade Expectation

<table>
<thead>
<tr>
<th>Grade</th>
<th>Expectation</th>
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<tbody>
<tr>
<td>High Distinction</td>
<td>Provides consistent evidence of deep and critical understanding in relation to the learning outcomes. There is substantial originality and insight in identifying, generating and communicating competing arguments, perspectives or problem solving approaches; critical evaluation of problems, their solutions and their implications; creativity in application as appropriate to the discipline.</td>
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<tr>
<td>Distinction</td>
<td>Provides evidence of integration and evaluation of critical ideas, principles and theories, distinctive insight and ability in applying relevant skills and concepts in relation to learning outcomes. There is demonstration of frequent originality in defining and analysing issues or problems and providing solutions; and the use of means of communication appropriate to the discipline and the audience.</td>
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<tr>
<td>Credit</td>
<td>Provides evidence of learning that goes beyond replication of content knowledge or skills relevant to the learning outcomes. There is demonstration of substantial understanding of fundamental concepts in the field of study and the ability to apply these concepts in a variety of contexts; convincing argumentation with appropriate coherent justification; communication of ideas fluently and clearly in terms of the conventions of the discipline.</td>
</tr>
<tr>
<td>Pass</td>
<td>Provides sufficient evidence of the achievement of learning outcomes. There is demonstration of understanding and application of fundamental concepts of the field of study; routine argumentation with acceptable justification; communication of information and ideas adequately in terms of the conventions of the discipline. The learning attainment is considered satisfactory or adequate or competent or capable in relation to the specified outcomes.</td>
</tr>
<tr>
<td>Fail</td>
<td>Does not provide evidence of attainment of learning outcomes. There is missing or partial or superficial or faulty understanding and application of the fundamental concepts in the field of study; missing, undeveloped, inappropriate or confusing argumentation; incomplete, confusing or lacking communication of ideas in ways that give little attention to the conventions of the discipline.</td>
</tr>
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### Review of Grade and final examination Script viewing:

- A student who has been awarded a final grade for a unit and who does not believe it is an accurate reflection of their performance, and has grounds for such a claim and can demonstrate those grounds, may apply to have their grade reviewed.
- For information on requesting a review of grade and/or viewing your final exam script, please refer to the University’s Grade Appeal Policy at [http://www.mq.edu.au/policy/docs/gradeappeal/policy.html](http://www.mq.edu.au/policy/docs/gradeappeal/policy.html) and MAFC Program Rules & Procedures at [http://www.mafc.mq.edu.au](http://www.mafc.mq.edu.au).

### Changes since First Published

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<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
<td>05/01/2016</td>
<td>Mapping updated</td>
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